

REMARKS

The Applicant thanks the Examiner for indicating that claims 47, 60 and 62-70 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claim(s). In accordance with this indication, claim 39 are appropriately revised to incorporate the limitation of claims 45 and 47 and this amended independent claim is now believed to be allowable. As claims 40-44 and 48-74 all depend, either directly or indirectly, from this amended independent claim, those dependent claims are believed to be allowable as well.

The drawings are objected to for the reasons noted in the official action. All of the raised drawing objections are believed to be overcome by the newly submitted Figs. 4A and 8A accompanying the attached Submission. As all the features of new Figs. 4A and 8A were previously described in the originally filed specification, the Applicant avers that neither of these new Figures contains any new subject matter. If any further amendment to the drawings is believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same.

The above newly amended paragraphs 035, 039, 061 and 074 of the specification provide a brief discussion of the newly entered drawings and/or overcome some informalities noted in the specification on file. The undersigned avers that the newly entered/amended paragraphs of the specification do not contain any new subject matter.

Claims 49, 56, 62, 63, 65, 67 and 75 are objected to for the reasons noted in the official action. The above claim amendments are believed to overcome all of the raised informalities concerning these claims. If any further amendments to the claims believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same.

Claims 39-76 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The rejected claims are accordingly amended, by the above claim amendments, and the presently pending claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections. The entered claim amendments are directed solely at overcoming the raised indefiniteness rejections and are not directed at distinguishing the present invention from the art of record in this case.

Claims 39-43, 48-52, 54-59 and 76 are then rejected, under 35 U.S.C. § 103(a), as being unpatentable over Peterson `764 in view of Herrington `413 or alternatively in view of

McCormick et al. '882. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

Peterson '764 relates to a cleaning and finishing machine employing belt brushes. As illustrated in Figs. 1 and 2, the Peterson '764 machine employs two belts 3, 13. Each of the two belts 3, 13 extends between and is driven by and rotates about a pair of rollers 4, 5 and 14, 15. The path of the belts 3, 13 as they communicate with and machine a workpiece strip is horizontal with respect to the base of the machine. The workpiece strip is fed into the machine by the pinch roll assembly 42 passes between the brushes 10, 20 and the belts 3, 13. One of the drawbacks of the Peterson '764 machine is the need for specialized support of the workpiece as it passes by the brushes 10, 20 and the belts 3, 13 through the machine. The specialized support is needed to compensate for the additional pressure of the workpiece placed on the brushes 10, 20 of the lower belt 3. This additional pressure is caused by the weight of the workpiece as it passes over the lower belt 3. The weight of the workpiece would cause a greater pressure to be placed on the lower belt 3 and the brushes 10 than on the upper belt 13 and the brushes 20, thus causing an inequality of treatment between the lower side of the workpiece versus the upper side of the workpiece.

It should be noted that the brushes 10, 20 and the belts 3, 13 are vertically aligned, one directly above the other. This is best seen in Fig. 2 where the belt 3 is aligned directly below the belt 13. This vertical alignment of the two belts 3, 13 aids the pinch roll assembly 42 with drawing the workpiece strip through the machine.

According to the Peterson '764 description, when discussing the function of the machine, the workpiece to be cleaned and finished is specifically described as being a continuous strip. Such disclosure is consistent with Fig. 2 which faces the path of the strip as the strip passes through the machine. The width of the brushes 10, 20 and the belts 3, 13 is unclear from the associated description, however, it can be seen that the brushes 10, 20 and the belts 3, 13 will only accommodate a fairly narrow strip.

The vertical alignment of the path of the two belts 3, 13 and the path of the strip, as the strip passes through the machine in relation to the path of the brushes 10, 20 and the belts 3, 13, indicates significant differences between the Peterson '764 reference and the claims of the application. As taught by Peterson '764, because of the relationship between the path of the strip as it passes through the machine in relation to the path of the brushes 10, 20 and the belts 3, 13, only a small portion of a large plate workpiece could be treated with each pass through the machine. The presently claimed invention, on the other hand, facilitates for a larger portion of a large plate workpiece to be treated with a single pass.

In summation, Peterson `764 merely discloses and teaches a single pair of belts 3, 13 having brushes 10, 20 while the presently claimed invention covers two separate belts or conveyer devices, both rotating in opposite directions, for treating a single side of a workpiece—e.g., typically two conveyor devices are located on each side of the workpiece. Further, the two conveyor device on either side of the workpiece travel in opposite directions to one another. So as the workpiece travels through the apparatus, the workpiece will contact a first conveyor which, for example, is traveling in a downward path past the surface of the workpiece. Thereafter, the workpiece will contact a second conveyor which is traveling in an upward direction, for example, which is moving in the opposite direction to that of the first conveyor. It is respectfully submitted that two conveyors operating on a single side of the workpiece—both traveling in opposite directions—will machine the same surface in a more thorough and effective manner than the prior art device of Peterson `764.

As presently claimed, the workpiece passes is arranged to traverse the traveling paths of the belts and the brushes at least at an oblique angle, if not perpendicularly, to the paths of the belts and brushes. This allows for total and complete treatment of two surfaces of a large plate workpiece which, in turn, results in a large time and cost savings associated with treatment of the workpiece. Additionally, as presently recited in the pending claims, the brushes and the belts are offset from one another, i.e., not aligned with one another as specifically taught be Peterson `746. As a result of this, the paths of the brushes and the belts, as they rotate about the respective rollers and treat the workpiece, are also offset with respect to one another. It is to be appreciated that this misalignment feature of the paths of the brushes and the belts has a significant benefit when the workpiece includes apertures or slots, for example, that pass completely through a plate workpiece. If the workpiece is not solid and the brushes are aligned with each other—as taught be Peterson `746—there is the possibility for the brushes to communicate with each other and cause unnecessary wear or potential damage to the brushes. The presently claimed misalignment of the brushes negates this associated drawback of Peterson `764 and thereby improves the effective life of the brushes. Furthermore, as presently claimed, the brushes and the belts each rotate about rollers which are vertically aligned with respect to one another. In other words, the paths of the rollers and the brushes are vertical. As a result of this arrangement of the rollers and the belts, the workpiece is passed through the brushes and the belts while standing on edge, thus not placing additional pressure on either of the belts and the brushes during the treatment of the workpiece. This eliminates the need for need for additional support for the workpiece while treating both opposed faces of the workpiece in an equal manner.

Herrington `413 is cited by the Examiner for its teaching of removing an oxide layer from a workpiece and the brushes linearly past the workpiece in a direction transverse to the path of the workpiece. The Applicant takes exception to the suggested interpretation of Herrington `413. As can be seen in Figs. 1-3, the brushes rotate about a rotational axis that is aligned with the travel direction of a strip of workpiece. This would arguably cause the brushes to brush the workpiece in a direction that is transverse to the path of the workpiece. However, as suggested by the Examiner, the brushes fixed to the roller would not travel linearly past the workpiece in a direction transverse to the path of the workpiece. The brush follows a circular path as it passes by the workpiece. This is significant in that the Herrington `413 reference in practice would remove scale unequally along the surface of the strip of the workpiece. The bushes, depending on the exerted downward pressure, would remove more oxide at the middle of the workpiece and less oxide toward the extremities of workpiece. In fact, one could argue, the thickness of the workpiece would be uneven, with the center of the workpiece being thinner than the edges. This would be an unacceptable result of the combination of the suggested combination of references.

In addition, Herrington `413, may arguably teach two or more brushes treating or machining a single surface of the workpiece. However, there is absolutely no teaching, suggestion or motivation that the rollers and brushes of Herrington `413 roll or contact the surface in opposite directions with relation to one another,

Finally, McCormick `882 is cited by the Examiner for its teaching of an apparatus for cleaning corrugated partition with brushes traveling linearly past the workpiece in a direction transverse to the path of the workpiece. The Applicant acknowledges that the additional reference of McCormick `882 may arguably relate to the feature indicated by the Examiner in the official action. Nevertheless, the Applicant respectfully submits that the combination of the base reference Peterson `746 with this additional art of Herrington `413 and McCormick `882 still fails to in any way teach, suggest or disclose the presently claimed invention. Most notably, as discussed in the remarks concerning Peterson `764, none of the cited references in any way teach at least four conveyor devices each having brushes or two conveyor devices located on the same side of the workpiece. Further, the two conveyor device on same side of the workpiece travel in opposite directions from one another. As a result of this arrangement, as the workpiece travels through the apparatus, it will contact a first conveyor traveling in a first direction, e.g., a downward path past the workpiece, for example. Thereafter, the workpiece will contact a second conveyor traveling in a second direction, e.g., an upward path which is opposite the traveling direction of the first conveyor. It is respectfully submitted that the two

oppositely traveling conveyors, located on a single side of the workpiece, will machine that surface in a more thorough and effective manner than that of the applied references. In view of the forgoing amendment and remarks, withdrawal the raised 35 U.S.C. § 103(a) rejections in view of Peterson `764 and Herrington `413 and/or McCormick et al. `882 is now believed to be in order.

Claim 44 is rejected, under 35 U.S.C. § 103(a), as being unpatentable over Peterson `764 in view of Herrington `413 or alternatively in view of McCormick et al. `882 as applied to claim 39 and further in view of Fenton `694. The Applicant acknowledges and respectfully traverses the raised obviousness rejections in view of the following remarks.

Initially, in response to the raised rejections, the Applicant directs the Examiner's attention to the remarks submitted above concerning the combination of Peterson `764, Herrington `413 and/or McCormick et al. `882. With respect to Fenton `694, this reference is cited for its teaching of plate which supports the workpiece. The claimed plate supporting the workpiece is merely cited to indicate the relative direction of at least one of the conveyors, that is in a direction downward toward the plate supporting the workpiece. The Applicant respectfully maintains that none of the cited references, including Fenton `694, in any way teach, suggest or disclose at least four conveyor devices, each having brushes, or an arrangement having two conveyor devices on at least one side of the workpiece which each conveyor traveling in an opposite directions from one another.

Claims 45, 46, 51 and 54 are then rejected, under 35 U.S.C. § 103(a), as being unpatentable over Peterson `764 in view of Herrington `413 or alternatively in view of McCormick et al. `882 as applied to claim 39 and further in view of Franke, Jr. `533 and Bange et al. `471. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

Again, in response to the raised rejections, the Applicant directs the Examiner's attention to the remarks submitted above concerning the combination of Peterson `764, Herrington `413 and/or McCormick et al. `882. In addition, even if one were able to combine the references as suggested by the Examiner, the Applicant asserts that the combination would still not arrive at all the limitations of the presently claimed invention.

Franke, Jr. `533 is cited for its teaching of two rows of brushes located on a single side of the workpiece and a row of brushes rotates in opposite direction with regard to the other row of brushes. The Applicant takes exception to the Examiner's interpretation of Franke, Jr. `533. The Applicant asserts that Franke, Jr. `533 merely teaches two rows of circular brushes, as shown in Fig. 1. In this Figure, both of the brushes are identified by reference numeral 12, that

is, both rows of brushes are considered to be at least similar if not the same. Fig. 2 shows brushes 12 as being the top rows of brushes and at least on other row of brushes 13. After a thorough search of Franke, Jr. '533, the Applicant adamantly asserts that it is only taught that the upper and the lower rows of brushes 12, 13 rotate in opposite directions with respect to one another. There is no teaching, suggestion or motivation of having the first row of brushes 12 or 13 rotate in an opposite direction to the second row of brushes 12 and 13 on the same side. As stated at column 7, lines 13-18 and lines 69-72 of Franke, Jr. '533, the upper brushes 12 rotate in an opposite direction to the lower brushes 13, that is all, there is no teaching, as stated above that the first row of brushes 12 or 13 on one side rotate in an opposite direction to the second row of brushes 12 and 13 on the same side.

One might argue that arrows in Fig. 1 show that the brushes 12 of the first row and the second row rotate in opposite direction. It is respectfully submitted that such argument would be misleading. All that is indicated by the arrows, as shown by the brushes 12 of this Figure, is that the brushes may rotate in either direction, however, both rows of brushes 12 rotate in the same rotation direction at one time. There is no teaching, suggestion or motivation found in Franke, Jr. '533 to indicate that the two conveyor devices (or rows of brushes, in this case) on either side of the workpiece travel or rotate in opposite directions from one another. That is, there is absolutely no teaching that a single side of the workpiece, as the workpiece travels through the apparatus, it will contact a first conveyor traveling in a first past the workpiece and, thereafter, will contact a second conveyor traveling in a second direction so that the two oppositely traveling conveyors, located on a single side of the workpiece, will machine the surface in a more thorough and effective manner than that of the applied references.

With respect to the applied Bange et al. '471 reference, the Applicant acknowledges that this reference may arguably relate to the feature indicated by the Examiner in the official action. Nevertheless, the Applicant respectfully submits that the combination of the base references with this additional art of Bange et al. '471 still fails to in any way teach, suggest or disclose the above distinguishing features of the presently claimed invention. As such, this rejection should be withdrawn at this time in view of the above amendments and remarks.

Claim 53 is rejected, under 35 U.S.C. § 103(a), as being unpatentable over Peterson '764 in view of Herrington '413 or alternatively in view of McCormick et al. '882 as applied to claim 39 and further in view of Tayebi et al. '754, and Soos '158 and Wandres '725. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

The Applicant acknowledges that the additional references of Tayebi et al. '754, Soos '158 and/or Wandres '725, may arguably relate to the features indicated by the Examiner in the official action. Nevertheless, the Applicant respectfully submits that the combination of the base references with this additional art of Tayebi et al. '754, Soos '158 and/or Wandres '725 still fails to in any way teach, suggest or disclose the above distinguishing features of the presently claimed invention. As such, all of the raised rejections should be withdrawn at this time in view of the above amendments and remarks.

In order to further distinguish the present invention from all of the applied art, the pending claims are amended emphasize the above noted distinctions. In particular, the independent claim 39 now recites the features of "[a]n apparatus for machining a metallic workpiece wherein the apparatus comprises at least first, second, third and fourth conveyor devices (2, 2, 2, 2) and . . . the first and the third conveyor devices (2, 2) rotate in opposite directions and are positioned for treating the first main surface of the workpiece (1), the second and the fourth conveyor devices (2, 2) rotate in opposite directions and are positioned for treating the second main surface of the workpiece (1), and the first and the fourth conveyor devices (2, 2) both rotate so as to guide the brushes (3) in a direction from a top of the apparatus toward one of a base plate (9) or a delimiting plate of the apparatus."

Claim 45 is amended to be an independent claim and recites the features of "wherein the apparatus comprises at least first and second conveyor devices (2, 2) and each of the first and the second conveyor devices (2, 2) has at least one brush (3), each of the at least the first and the second conveyor devices (2, 2) guides the respective at least one brush (3) at least approximately linearly past a region of the workpiece (1) to be treated one of obliquely or transversely with respect to an advance direction of the workpiece (1), the first and the second conveyor devices (2, 2) rotate in opposite directions and both are positioned for treating one of the first and the second main surfaces (1c) of the workpiece (1)."

Claim 46 is amended to be an independent claim and recites the features of ". . . wherein the apparatus comprises at least first and second conveyor devices (2, 2) and each of the first and the second conveyor devices (2, 2) has at least one brush (3), each of the at least the first and the second conveyor devices (2, 2) guides the respective at least one brush (3) at least approximately linearly past a region of the workpiece (1) to be treated one of obliquely or transversely with respect to an advance direction of the workpiece (1), the first and the second conveyor devices (2, 2) rotate in opposite directions and the first conveyor device (2) machines the first main surface of the workpiece (1) while the second conveyor device (2) machines the second main surface of the workpiece (1), and the first and the second conveyor devices (2)

are arranged slightly offset with respect to one another in the advance direction in which the workpiece (1) passes through."

Claim 76 is amended to include the features of "[a] method . . . comprising the steps of: . . . guiding the workpiece (1) past the first, the second, the third and the fourth conveyor devices (2) one of obliquely or transversely with respect to a direction of rotation of the first, the second, the third and the fourth conveyor devices (2) the first conveyor device (2) machining a first side of the workpiece and the second conveyor device (2) machining a second surface, the third conveyor device (2) machining the first surface and the fourth conveyor device (2) machining the second surface, the first and the third conveyor devices rotating in opposite directions and the second and the fourth conveyor devices rotating in opposite directions; and ensuring contact between the first, the second, the third and the fourth conveyor devices (2, 2, 2, 2) and the brush (3)".

New independent claim 77 is drafted to include the patentable limitations of "wherein the apparatus comprises at least first and second conveyor devices (2, 2) each having at least one brush (3), each of the first and the second conveyor devices (2, 2) guides the respective at least one brush (3) approximately linearly past a region of the workpiece (1) to be treated one of obliquely or transversely with respect to an advance direction of the workpiece (1), the first and the second conveyor devices (2, 2) rotate in opposite directions to one another and both are positioned one side of the apparatus for treating only one of the first and the second main surfaces (1c) of the workpiece (1).

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same."

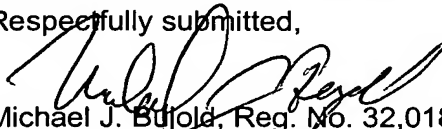
In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejections should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejections or applicability of the cited references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejections should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



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